

WE CLAIM:

1. Product made by removing oil from animal byproduct material and comprising the steps of warming the temperature of said animal byproduct material to a  
5 temperature of less than 95 deg.C., digesting said animal byproduct material in a first digesting step to substantially liquify said animal byproduct material and centrifuging said animal byproduct material to remove said oil.

10 2. Product according to claim 1 wherein said animal byproduct material is marine byproduct material.

3. Product according to claim 2 wherein said marine byproduct material is warmed to a temperature of less than 70 deg.C.

15 4. Product according to claim 2 wherein said digesting of said marine material is subject to predetermined pH and predetermined time conditions.

5. Product according to claim 4 wherein

said pH is controlled between 3.0 and 8.5.

6. Product according to claim 5 wherein said predetermined time ranges between 10 minutes and 40 days.

5 7. Product according to claim 6 wherein said centrifuging of said oil is followed by further processing of said removed oil.

8. Product according to claim 7 wherein said marine byproduct material is ground before said  
10 warming.

9. Product according to claim 8 wherein said marine byproduct material is mechanically deboned following said warming.

10. Product according to claim 9 and further  
15 comprising subjecting said material to a second digesting step, adding exogenous enzymes during said second digesting step and increasing the temperature of said material during said second digesting step.

11. Product according to claim 9 and further comprising centrifugally decanting said oil following said second digesting step.

12. Product according to claim 1 wherein  
5 said marine byproduct material is warmed to a temperature of less than 55 deg.C.

13. Product made by removing bone from marine byproduct material and comprising the steps of warming said ground marine byproduct material to a  
10 temperature less than 95 deg.C. and deboning said ground marine byproduct material.

14. Product according to claim 13 and further comprising grinding said marine byproduct material prior to said warming of said marine byproduct material.

15. Product according to claim 13 wherein  
15 said marine byproduct material is warmed to 70 deg.C.

16. Product according to claim 15 wherein said material is warmed to a temperature of less than 55

deg.C.

17. Product according to claim 13 wherein said deboning is mechanical deboning.

18. Product made by recovering bone and oil  
5 from marine byproduct material and comprising the steps of grinding said marine byproduct material to reduce the size of solids therein, warming said marine byproduct material to a temperature of less than 70 deg.C., deboning said warmed marine byproduct material, digesting said marine byproduct  
10 material to substantially liquify said marine byproduct material and centrifuging said marine byproduct material following said digestion to remove said oil.

19. Product according to claim 18 wherein said marine byproduct material is warmed to a temperature of  
15 less than 55 deg.C.

20. Product according to claim 19 and further comprising adding exogenous enzymes to said digested marine byproduct material, heating said material to a second temperature, digesting said material in a second digesting

step and centrifuging said material to remove said oil.

21. Product according to claim 20 wherein said material is evaporated following said centrifugation of said product and removal of said oil.

5 22. Product according to claim 21 wherein dry vegetable protein is added to said material following said evaporation and said product is co-dried.

23. Product according to claim 21 wherein said material is acid stabilized following said evaporation.

10 24. Product according to claim 4 wherein said time for said first digestion step is between thirty(30) minutes and sixteen (16) hours.

25. Product according to claim 7 wherein said cleaning and/or polishing of said oils is a second  
15 centrifugation step to remove water and other contaminants from said removed oil

26. Product according to claim 13 and

further comprising adding exogenous enzymes to said marine byproduct material.

27. Product according to claim 26 wherein said exogenous enzymes are commercially available  
5 proteolytic enzymes.

28. Product according to claim 3 wherein said marine material is warmed to a temperature of less than 55 deg. C.

29. Product made by removing oil from animal  
10 byproduct material and comprising the steps of warming the temperature of said animal byproduct material to a temperature of less than about 95 deg. C. and higher than about 55 deg. C., incubating and digesting said animal  
byproduct material in a first incubating and digesting step  
15 using the naturally occurring endogenous proteolytic enzymes of said animal byproduct material to liquefy said animal byproduct material and centrifuging said liquefied animal byproduct material to remove said oil.

30. Product according to claim 29 wherein  
said animal byproduct material is marine byproduct material.

31. Product according to claim 30 wherein  
said marine byproduct material is warmed to a temperature of  
5 less than 70 deg. C.

32. Product according to claim 30 wherein  
said digesting of said marine material in said first  
digesting step is subject to a pH between 6.5 and 7.5 and  
said time for digestion is between thirty(30) minutes and  
10 forty(40) hours.

33. Product according to claim 32 wherein  
said pH is controlled between 3.0 and 8.5.

34. Product according to claim 33 wherein  
said time extends between thirty(30) minutes and forty(40)  
15 hours.

35. Product according to claim 34 wherein  
said centrifuging of said oil is followed by cleaning and/or  
polishing of said oil to remove contaminants and additional

water.

36. Product according to claim 35 wherein said marine byproduct material is ground before said warming.

5 37. Product according to claim 36 wherein said marine byproduct material is mechanically deboned following said warming.

38. Product according to claim 37 and further comprising subjecting said material to a second  
10 digesting step, adding exogenous enzymes during said second digesting step and increasing the temperature of said material during said second digesting step.

39. Product according to claim 37 and further comprising centrifugally decanting said oil  
15 following said second digesting step.

40. Product according to claim 29 wherein said marine byproduct material is warmed to a temperature of less than 55 deg. C.



41. Product made by removing bone from marine byproduct material comprising the steps of warming said marine byproduct material above the temperature of digestion naturally occurring in said marine byproduct material and which digestion utilises endogenous enzymes and occurs at a pH of above about 6.2 and at pH of less than about 8.5, said marine byproduct material being warmed to a temperature of less than about 95 deg. C. and higher than a temperature of about 55 deg. C. and subsequently deboning said byproduct material.

42. Product according to claim 41 and further comprising grinding said marine byproduct material prior to said warming of said marine byproduct material.

43. Product according to claim 41 wherein said marine byproduct material is fish waste, whole fish and/or fish bycatch and said marine byproduct material is warmed to a temperature less than 70 deg. C.

44. Product according to claim 41 wherein said deboning is mechanical deboning.

45. Product produced by recovering bone and oil from marine byproduct material comprising the steps of grinding said marine byproduct material to reduce the size of solids therein, warming said marine byproduct material to a temperature greater than that wherein naturally occurring digestion takes place but less than 70 deg. C. and higher than about 50 deg. C., deboning said warmed marine byproduct material, incubating and digesting said marine byproduct material in a first digesting step using the endogenous enzymes of said marine byproduct material to liquefy said marine byproduct material and centrifuging said marine byproduct material following said first digestion step to remove said oil.

46. Product according to claim 45 wherein said marine byproduct material is warmed to a temperature of less than 55 deg. C.

47. Product according to claim 46 and further comprising adding exogenous enzymes to said digested marine byproduct material, heating said material to a second temperature, digesting said material in a second digesting step and centrifuging said material to remove said oil.

48. Product according to claim 47 wherein said material is evaporated following said centrifugation of said product and removal of said oil.

49. Product according to claim 48 wherein  
5 dry vegetable protein is added to said material following said evaporation and said product is co-dried.

50. Product according to claim 49 wherein said material is acid stabilized following said evaporation.

51. Product according to claim 50 and  
10 further comprising packaging and storing said material.

52. Product according to claim 50 and further comprising packaging and storing said acid stabilised material.

53. Product according to claim 32 wherein  
15 said time for said first digestion step is between thirty (30) minutes and sixteen (16) hours.

54. Product according to claim 35 wherein

said cleaning and/or polishing of said oil is a second centrifugation step to remove water and other contaminants from said removed oil.

55. Product according to claim 41 and  
5 further comprising adding exogenous enzymes to said marine byproduct material.

56. Product according to claim 55 wherein said exogenous enzymes are commercially available proteolytic enzymes.

10 57. Product according to claim 31 wherein said marine material is warmed to a temperature of less than 55 deg. C.